

Applicant : Alfred F. Behrens Date: 5/21/05
Serial No. : 10/697,227 Art Unit: 3732
Response to Office Action of December 1, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended). A bone fracture treatment apparatus for stabilizing a fracture in a long bone of the body, the long bone having a proximal end, a distal end and a bone shaft extending between the proximal end and the distal end, the fracture being located adjacent one of the proximal end and the distal end, the apparatus comprising:

an intramedullary nail insertable in the long bone through one of the proximal end and the distal end to extend longitudinally along the long bone toward a corresponding other of the distal end and the proximal end, the intramedullary nail having a first end, a second end and an elongate shank extending along a central longitudinal axis and having a longitudinal length between the first end and the second end of the intramedullary nail for locating the first end adjacent the corresponding other of the distal end and the proximal end of the long bone when the second

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end is placed at the one of the proximal end and the distal end of the long bone;

at least one socket extending transversely into the shank intermediate the first and second ends of the intramedullary nail, the socket being spaced away from each of the first and second ends a distance sufficient to assure that ~~the socket is juxtaposed with the bone shaft~~ upon insertion of the intramedullary nail into the long bone the socket is juxtaposed with the bone shaft and is located adjacent the one of the proximal end the distal end of the long bone;

at least one anchoring pin dimensioned and configured relative to the socket for being secured within the socket, located and secured to the shaft of the intramedullary nail so as to extend transversely from the shaft of the long bone adjacent the one of the proximal end and the distal end of the long bone;

a drill guide having at least one drill guide passage for alignment with the fracture; and

a coupling arrangement for coupling the drill guide with the anchoring pin such that upon securing the anchoring pin within the socket and coupling the drill guide with the anchoring pin, the drill guide passage is aligned with the fracture for guiding a drill to the fracture and creating a hole in the long bone for the

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subsequent insertion of a stabilizing fastener to stabilize the fracture.

Claim 2(original). The apparatus of claim 1 wherein the socket and the anchoring pin include complementary screw threads for securing the anchoring pin within the socket.

Claim 3(original). The apparatus of claim 1 including at least two sockets spaced apart longitudinally from one another and at least two corresponding anchoring pins, and wherein the coupling arrangement is configured for coupling the drill guide to the two anchoring pins.

Claim 4(original). The apparatus of claim 3 wherein each socket and each anchoring pin include complementary screw threads for securing each anchoring pin within a corresponding socket.

Claim 5(original). The apparatus of claim 1 wherein the drill guide passage extends in a direction making an obtuse angle with the central longitudinal axis of the shank.

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Claim 6(original). The apparatus of claim 1 wherein the drill guide passage extends in a direction essentially normal to the central longitudinal axis of the shank.

Claim 7(original). The apparatus of claim 1 including at least one further passage, the further passage extending through the shank of the intramedullary nail and being aligned with the drill guide passage when the drill guide is coupled to the anchoring pin.

Claim 8(original). The apparatus of claim 7 wherein the drill guide passage extends in a direction making an obtuse angle with the central longitudinal axis of the shank, and the further passage extends along that direction for alignment with the drill guide passage when the drill guide is coupled to the anchoring pin.

Claim 9(original). The apparatus of claim 7 wherein the drill guide passage extends in a direction extending essentially normal to the central longitudinal axis of the shank, and the further passage extends along that direction for alignment with the drill guide passage when the drill guide is coupled to the anchoring pin.

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Claim 10(original). The apparatus of claim 7 wherein the further passage includes an internal screw thread for engaging a complementary external screw thread on the stabilizing fastener to lock the stabilizing fastener in place when the stabilizing fastener is in place to stabilize the fracture.

Claim 11(original). The apparatus of claim 1 wherein the coupling arrangement includes an end support for coupling the drill guide to one of the first and second ends of the shank of the intramedullary nail.

Claim 12(original). A bone fracture treatment method for stabilizing a fracture in a long bone of the body, the long bone having a proximal end, a distal end and a bone shaft extending between the proximal end and the distal end, the fracture being located adjacent one of the distal end and the proximal end, the method comprising:

inserting an intramedullary nail in the long bone through one of the proximal end and the distal end to extend longitudinally along the long bone toward a corresponding other of the distal end and the proximal end, the intramedullary nail having a first end, a second end and an elongate shank extending along a central

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longitudinal axis and having a longitudinal length between the first end and the second end of the intramedullary nail to locate the first end adjacent the corresponding other of the distal end and the proximal end of the long bone when the second end is placed at the one of the proximal end and the distal end of the long bone;

the intramedullary nail including at least one socket extending transversely into the shank intermediate the first and second ends of the intramedullary nail, the socket being spaced away from each of the first and second ends a distance sufficient to juxtapose the socket with the bone shaft upon insertion of the intramedullary nail in the long bone;

securing an anchoring pin within the one socket such that the anchoring pin extends transversely from the bone shaft of the long bone;

coupling a drill guide with the anchoring pin such that a drill guide passage in the drill guide is aligned with the fracture for guiding a drill to the fracture;

extending a drill through the drill guide passage and into the long bone to create a hole in the long bone, aligned with the fracture; and

inserting a stabilizing fastener into the hole to stabilize the fracture.

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Claim 13(original). The method of claim 12 wherein the intramedullary nail includes at least two sockets and the method includes securing an anchoring pin within each of the two sockets, and coupling the drill guide with each anchoring pin.

Claim 14(original). The method of claim 12 wherein the intramedullary nail includes at least one further passage, the further passage extending through the shank of the intramedullary nail, the method including aligning the further passage with the drill guide passage when the drill guide is coupled to the anchoring pin such that upon insertion of the stabilizing fastener, the stabilizing fastener is passed through the further passage.

Claim 15(original). The method of claim 14 including locking the stabilizing fastener within the further passage of the shank subsequent to stabilizing the fracture with the stabilizing fastener.

Claim 16(currently amended). The method of claim [[11]] 12 wherein the intramedullary nail comprises a retrograde nail inserted through the distal end to extend toward the proximal end.

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Claim 17(currently amended). The method of claim [[11]] 12 wherein the intramedullary nail comprises an antegrade nail inserted through the proximal end to extend toward the distal end.